

PhD DISSERTATION

Title: **Essays on Undernutrition and Vulnerability to Poverty**

Supervisor: Giovanni Vecchi, Associate Professor at University of Rome Tor Vergata

ABSTRACT

The doctoral thesis is composed of two articles.

First article: **“Undernutrition and Vulnerability to food insecurity: a not so (log)normal distribution for caloric intake”**

The article reviews FAO’s methodology for the estimation of the proportion of population below the minimum level of dietary energy consumption and Christiaensen and Boisvert’s quantitative approach (2000) to measure vulnerability to food insecurity. Both of these methodologies use a parametric framework that requires assumptions about the distribution of caloric consumption. These assumptions can influence significantly the estimation of the number of hungry and/or vulnerable people; nevertheless, it has not been properly investigated in the literature. This study addresses this methodological shortcoming and aims to identify a suitable parametric functional form for the distribution of caloric intake. With this aim, both gamma- and beta-type distributions are taken into consideration. The analysis is based on a national representative household survey conducted in Malawi in 2004-2005, which contained detailed and high quality data on household food consumption. The non-parametric approach identified 3.4 million people (27.63%) unable to meet an adequate energy requirement. The use of parametric distributions gave similar results predicting between 3.3 and 3.7 million caloric deficient people. However, important differences among these estimates exist. In fact, the comparison of the two aforementioned families of distribution through numerical and graphical tools suggested that the widely used lognormal distribution produces bias estimates, while the beta-type distributions, in particular Singh-Maddala and generalized beta of second kind, describe more accurately the distribution of caloric intake. Although the results cannot be generalized without further investigation, the major contribution of this study is to have exposed an important issue neglected in the literature.

Second article: **“Italy 1980-2010. A pseudo-panel approach to track poverty and vulnerability”**

The article aims to extend the work of Rossi and Vecchi (2011) and tracks the dynamics of poverty in Italy from 1980 to 2010. The analysis is based on a new and unexplored dataset, built by aggregating and ensuring consistency of 30 rounds of the Household Budget Survey conducted yearly by the Italian National Statistic Office (ISTAT). To shed some light on the problem of vulnerability to poverty for Italian households, the study combines Chaudhuri’s definition of vulnerability (2002) and pseudo-panel techniques for the estimation of future consumption (Deaton, 1985). The results significantly differ from the conclusion drawn in Rossi and Vecchi (2011). The overall increase in welfare brought a significant reduction both on the headcount poverty rate and the proportion of population at risk of poverty. Nevertheless in 2010, 7% of Italians still faced a high risk of experiencing poverty, 4% of the population was in a status of chronic poverty and the increase in welfare did not reduce the

secular gap between North and South as poverty rate was still three times higher in the Islands than in the rich northeast regions. Furthermore, although the severity is not as striking when the 30 year period is considered, the data confirms the worsening condition of Italian households during the years of the financial crisis (2008-2010): about 1 million Italian households were pushed into poverty and 700 thousand became vulnerable.